

Resource Summary Report

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BioCARS

RRID:SCR_001439

Type: Tool

Proper Citation

BioCARS (RRID:SCR_001439)

Resource Information

URL: <https://biocars.uchicago.edu/>

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Description: Biomedical technology research center and training resource that is a state-of-the art, national user facility for synchrotron-based studies of dynamic and static properties of macromolecules by X-ray scattering techniques such as crystallography (specializing in time-resolved), small- and wide-angle X-ray scattering and fiber diffraction. BioCARS operates two X-ray beamlines, embedded in a Biosafety Level 3 (BSL-3) facility unique in the U.S. that permits safe studies of biohazardous materials such as human pathogens., THIS RESOURCE IS NO LONGER IN SERVICE. Documented on September 16,2025.

Abbreviations: BioCARS

Synonyms: BioCARS: A Synchrotron Structural Biology Resource

Resource Type: access service resource, biomedical technology research center, service resource, training resource

Defining Citation: [PMID:21685684](#)

Keywords: synchrotron, macromolecule, x-ray, crystallography, x-ray scattering, fiber diffraction, biological process, time-resolved crystallography, structural biology technology center

Funding: NIGMS P41GM103543;
NCRR P41RR007707

Availability: THIS RESOURCE IS NO LONGER IN SERVICE

Resource Name: BioCARS

Resource ID: SCR_001439

Alternate IDs: nlx_152665

Alternate URLs: <http://cars9.uchicago.edu/biocars/>

Record Creation Time: 20220129T080207+0000

Record Last Update: 20260821T193623+0000

Ratings and Alerts

No rating or validation information has been found for BioCARS.

No alerts have been found for BioCARS.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 64 mentions in open access literature.

Listed below are recent publications. The full list is available at [NIF](#) .

Lee C, et al. (2025) Millisecond Phase Transition Kinetics of Lyotropic Liquid Crystalline Nanoparticles Observed by Time-Resolved Small Angle X-ray Solution Scattering. *Chemphyschem : a European journal of chemical physics and physical chemistry*, 26(14), e202401072.

Zielinski KA, et al. (2024) Scaling and Merging Time-Resolved Laue Data with Variational Inference. *bioRxiv : the preprint server for biology*.

Kim SO, et al. (2024) Serial X-ray liquidography: multi-dimensional assay framework for exploring biomolecular structural dynamics with microgram quantities. *Nature communications*, 15(1), 6287.

Greisman JB, et al. (2024) Perturbative diffraction methods resolve a conformational switch that facilitates a two-step enzymatic mechanism. *Proceedings of the National Academy of Sciences of the United States of America*, 121(9), e2313192121.

Kim C, et al. (2024) Structural dynamics of protein-protein association involved in the light-induced transition of *Avena sativa* LOV2 protein. *Nature communications*, 15(1), 6991.

Hewitt RA, et al. (2024) Laue-DIALS: Open-source software for polychromatic x-ray diffraction data. *Structural dynamics (Melville, N.Y.)*, 11(5), 054701.

Zielinski KA, et al. (2024) Resolving DJ-1 Glyoxalase Catalysis Using Mix-and-Inject Serial Crystallography at a Synchrotron. *bioRxiv : the preprint server for biology*.

Bennett AL, et al. (2024) Microsecond dynamics control the HIV-1 Envelope conformation. *Science advances*, 10(5), eadj0396.

Zielinski KA, et al. (2024) Scaling and merging time-resolved pink-beam diffraction with variational inference. *Structural dynamics* (Melville, N.Y.), 11(6), 064301.

Smith N, et al. (2023) X-ray-driven chemistry and conformational heterogeneity in atomic resolution crystal structures of bacterial dihydrofolate reductases. *bioRxiv : the preprint server for biology*.

Hekstra DR, et al. (2023) Emerging Time-Resolved X-Ray Diffraction Approaches for Protein Dynamics. *Annual review of biophysics*, 52, 255.

Velazquez-Garcia JJ, et al. (2023) Structural dynamics of a thermally silent triiron(II) spin crossover defect grid complex. *Dalton transactions* (Cambridge, England : 2003), 52(35), 12224.

Greisman JB, et al. (2023) Resolving conformational changes that mediate a two-step catalytic mechanism in a model enzyme. *bioRxiv : the preprint server for biology*.

Bennett AL, et al. (2023) Microsecond dynamics control the HIV-1 envelope conformation. *bioRxiv : the preprint server for biology*.

Basuroy K, et al. (2023) Axial vs equatorial: Capturing the intramolecular charge transfer state geometry in conformational polymorphic crystals of a donor-bridge-acceptor dyad in nanosecond-time-scale. *The Journal of chemical physics*, 158(5), 054304.

Wilamowski M, et al. (2022) Time-resolved β -lactam cleavage by L1 metallo- β -lactamase. *Nature communications*, 13(1), 7379.

Choi M, et al. (2021) Effect of the abolition of intersubunit salt bridges on allosteric protein structural dynamics. *Chemical science*, 12(23), 8207.

Bowen CH, et al. (2021) Microbial production of megadalton titin yields fibers with advantageous mechanical properties. *Nature communications*, 12(1), 5182.

Guo C, et al. (2020) Thermoplastic moulding of regenerated silk. *Nature materials*, 19(1), 102.

Ren Z, et al. (2020) An automated platform for in situ serial crystallography at room temperature. *IUCrJ*, 7(Pt 6), 1009.